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REMARKS

The application has been reviewed in light of the Office Action dated December 13, 2007. Claims 1-23 were pending, with claims 1-17, 22 and 23 having been withdrawn by the Patent Office from examination. By this Amendment, withdrawn claims 1-17, 22 and 23 have been canceled, without prejudice or disclaimer, claims 18 and 19 have been amended to clarify the claimed subject matter, and new claims 24-41 have been added. Accordingly, claims 18-21 and 24-41 are now pending, with claim 18 being the sole pending claim in independent form.

Claims 18-21 were rejected under 35 U.S.C. § 102(a) as purportedly anticipated by U.S. Patent No. 6,198,960 to Fain et al.

Applicant has carefully considered the Examiner's comments and the cited art, and respectfully submits that independent claim 18 is patentable over the cited art, for at least the following reasons.

The present application relates to a magnetic resonance imaging system configured to take a high-quality blood vessel image with a contrast-enhanced angiography for imaging the running state of a vascular system by injecting a contrast agent. In an aspect of the present application, the magnetic resonance imaging system is provided with pulse sequence control means for controlling a pulse sequence including at least one imaging parameter of a repetition time TR and executed to receive an echo signal, wherein, during execution of the pulse sequence, the pulse sequence control means changes a value of the at least one imaging parameter of the repetition time TR in the pulse sequence depending on a concentration of a contrast agent, which has been injected into the object, in the blood vessel.

Fain, as understood by Applicant, proposes an approach for performing magnetic resonance angiography study of a subject using a 3D fast gradient-recalled echo pulse sequence

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after the subject is injected with a contrast agent, wherein the flip angle is updated by interleaving measurement pulse sequences which measure in real-time contrast agent concentration, and the contrast concentration profile is determined in advance and a corresponding table of optimal flip angles are calculated and played out during the image acquisition. That is, in the approach proposed by Fain, a flip angle of a RF excitation pulse used in an imaging pulse sequence is modulated, during execution of the imaging pulse sequence, such that the flip angle changes as a function of contrast agent concentration in the region of interest.

However, Fain does not disclose or suggest that a value of the repetition time TR in the pulse sequence is changed depending on a concentration of a contrast agent injected into the blood vessel (independent claim 18 of the present application).

In order to change the flip angle in the approach proposed by Fain, amplitude and duration time of RF pulse are changed in accordance with the change of flip angle.

On the other hand, in the claimed subject matter of the present application, the amplitude and duration time values are not changed but rather the repetition time TR is controlled, and a value of the repetition time TR in the pulse sequence is changed depending on a concentration of a contrast agent injected into the blood vessel (independent claim 18 of the present application).

While control of repetition time TR can be combined with control and change of the flip angle to obtain even a greater number of data and increase signal intensity (see paragraphs [0149] through [0163]), control of repetition time TR is not synonymous with, and is not disclosed or suggested or otherwise rendered obvious by, control and change of the flip angle.

Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claim 18 and the claims depending therefrom are patentable over the cited art.

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In view of the remarks hereinabove, Applicant submits that the application is now in condition for allowance. Accordingly, Applicant earnestly solicits the allowance of the application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Patent Office is hereby authorized to charge any fees that are required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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